

Message

**From:** Labiosa, Rochelle [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DED3654216C9461D95CD5A3CEEC507EF-LABIOSA, ROCHELLE]  
**Sent:** 3/23/2016 2:41:11 PM  
**To:** Jacobson, Martin [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=8fafee20580b4afaa071e71ddcc088eb-Jacobson, M]; Fullagar, Jill [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=7ba061353c314b40a14a8be1ee382ae3-Gable, Jill]  
**CC:** Cox, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=cddd6a5bb3c2477183799ef56cddb464f-Cox, Michael]  
**Subject:** RE: SST imagery RE: OA Paper. Call-n: [Personal Privacy / Ex. 6] ode: [Personal Privacy / Ex. 6], Adobe Connect: <https://epawebconferencing.acms.com/> [Personal Privacy / Ex. 6]

Hi Marty - the lat/lons are in a table that is an appendix or link in the paper - I can dig it up later today. I can also send a geotiff if you need exact lat/lon info - just let me know.

Rochelle Labiosa, Ph.D.  
Office of Water and Watersheds  
US EPA, Region 10  
1200 Sixth Avenue, Suite 900, MC: OWW-191  
Seattle, WA 98101-3140  
Ph: 206.553.1172  
Fax: (206) 553-0165

-----Original Message-----

**From:** Jacobson, Martin  
**Sent:** Tuesday, March 22, 2016 5:01 PM  
**To:** Labiosa, Rochelle <labiosa.rochelle@epa.gov>; Fullagar, Jill <Fullagar.Jill@epa.gov>  
**Cc:** Cox, Michael <Cox.Michael@epa.gov>  
**Subject:** RE: SST imagery RE: OA Paper. Call-n: [Personal Privacy / Ex. 6] ode: [Personal Privacy / Ex. 6], Adobe Connect: <https://epawebconferencing.acms.com/> [Personal Privacy / Ex. 6]

Hi Rochelle,

I do not have the Bednarsek points mapped. Are the lat/lon coordinates in a spreadsheet somewhere? As for overlaying that image, it should be pretty easy to georeference it onto a map. I'll can try to work on that tomorrow when I am in the office.

Marty

**From:** Labiosa, Rochelle  
**Sent:** Tuesday, March 22, 2016 2:49 PM  
**To:** Fullagar, Jill; Jacobson, Martin  
**Cc:** Cox, Michael  
**Subject:** FW: SST imagery RE: OA Paper. Call-n: [Personal Privacy / Ex. 6] ode: [Personal Privacy / Ex. 6], Adobe Connect: <https://epawebconferencing.acms.com/> [Personal Privacy / Ex. 6]

Hi Jill and Marty,

Since Cheryl is out of town, I was wondering if it would be possible for Marty to overlay the image below on top of the Bednarsek data points to illustrate the location of the data points compared to the upwelled waters - Marty, do you have the Bednarsek data locations mapped? If so, I can send a geotiff or kml of the below if that will work to do the overlay. Just let me know - I think this will be helpful for the conversation with Dan.

Rochelle Labiosa, Ph.D.  
Office of Water and Watersheds  
US EPA, Region 10  
1200 Sixth Avenue, Suite 900, MC: OWW-191 Seattle, WA 98101-3140  
Ph: 206.553.1172  
Fax: (206) 553-0165

**From:** Labiosa, Rochelle  
**Sent:** Monday, March 14, 2016 12:19 PM  
**To:** Brown, Cheryl A. <Brown.Cheryl@epa.gov>; Cox, Michael <Cox.Michael@epa.gov>; Fullagar, Jill <Fullagar.Jill@epa.gov>; Cope, Ben <Cope.Ben@epa.gov>; Cora, Lori <Cora.Lori@epa.gov>

Subject: SST imagery RE: OA Paper. Call-n: [Personal Privacy / Ex. 6] ode: [Personal Privacy / Ex. 6], Adobe Connect:  
<https://epawebconferencing.acms.com> [Personal Privacy / Ex. 6]

And I found some good sea surface temperature imagery from NOAA coastwatch, AQUA satellite with MODIS sensor - SST - monthly composites. The below image is August 2011 - monthly composite of all of the daily imagery.

Cheryl, let me know the best format you want to use in GIS to overlay with the monitoring locations -I can send as kml or geotiff. If you want to regenerate the image or look at other years, here is the location:

[http://coastwatch.pfeg.noaa.gov/erddap/griddap/erdMWsstmdmday.graph?sst\[\(2011-08-16T12:00:00Z\)\]\[\(0.0\)\]\[\(40.55\):\(49.5375\)\]\[\(231.525\):\(240.5125\)\]&.draw=surface&.vars=longitude|latitude|](http://coastwatch.pfeg.noaa.gov/erddap/griddap/erdMWsstmdmday.graph?sst[(2011-08-16T12:00:00Z)][(0.0)][(40.55):(49.5375)][(231.525):(240.5125)]&.draw=surface&.vars=longitude|latitude|)

Rochelle Labiosa, Ph.D.  
Office of Water and Watersheds  
US EPA, Region 10  
1200 Sixth Avenue, Suite 900, MC: OWW-191 Seattle, WA 98101-3140  
Ph: 206.553.1172  
Fax: (206) 553-0165

---

From: Brown, Cheryl A.  
Sent: Monday, March 14, 2016 10:38 AM  
To: Labiosa, Rochelle <labiosa.rochelle@epa.gov<mailto:labiosa.rochelle@epa.gov>>; Cox, Michael <Cox.Michael@epa.gov<mailto:Cox.Michael@epa.gov>>; Fullagar, Jill <Fullagar.Jill@epa.gov<mailto:Fullagar.Jill@epa.gov>>; Cope, Ben <Cope.Ben@epa.gov<mailto:Cope.Ben@epa.gov>>; Cora, Lori <Cora.Lori@epa.gov<mailto:Cora.Lori@epa.gov>>  
Subject: RE: OA Paper. Call-n: [Personal Privacy / Ex. 6] ode: [Personal Privacy / Ex. 6], Adobe Connect:  
<https://epawebconferencing.acms.com> [Personal Privacy / Ex. 6]

Great find, Rochelle.

Attached is the revised version of the figure that shows location of Bednarsek sampling off of Oregon. I colored the datapoints in powerpoint. If you want to tweak it I can send the power point file as well.

Also, find attached the Haigh et al (2015) paper that has a section on pteropods (see pages 15 & 16).

I've also attached another report authored by Bill Peterson in which he shows aragonite saturation at NH-5 (Newport line), estimated Using the Juranek et al paper. See image below Here is excerpt of text that goes with this figure.

<< OLE Object: Picture (Device Independent Bitmap) >> << OLE Object: Picture (Device Independent Bitmap) >>

Cheers,  
Cheryl

<< File: Bednarsek Only Data points off of Oregon\_version 2.pdf >> << File: Haigh et al 2015 Effects of OA on Temperate coastal marine ecosystems and fisheries in the NE Pacific.pdf >> << File: IEA-State-of-the-California-Current-Report-2015.pdf >>

---

From: Labiosa, Rochelle  
Sent: Monday, March 14, 2016 10:24 AM  
To: Cox, Michael <Cox.Michael@epa.gov<mailto:Cox.Michael@epa.gov>>; Fullagar, Jill <Fullagar.Jill@epa.gov<mailto:Fullagar.Jill@epa.gov>>; Cope, Ben <Cope.Ben@epa.gov<mailto:Cope.Ben@epa.gov>>; Cora, Lori <Cora.Lori@epa.gov<mailto:Cora.Lori@epa.gov>>; Brown, Cheryl A. <Brown.Cheryl@epa.gov<mailto:Brown.Cheryl@epa.gov>>  
Subject: RE: OA Paper. Call-n: [Personal Privacy / Ex. 6] ode: [Personal Privacy / Ex. 6], Adobe Connect:  
<https://epawebconferencing.acms.com> [Personal Privacy / Ex. 6]

I found a great summary paper from NOAA 2011 (Bill Peterson) including cumulative upwelling index and strength compared to previous years- with other climatologies to illustrate what was driving coastal dynamics in 2011. So, Jill, no need to have Marty do the stats on the upwelling index. Evidence shows there was less upwelling than usual in 2011.

See page 27:

One can see in Figure 10 that upwelling was initiated on day 105 (15 April) in 2011. The winds were relatively weak in the beginning of the season, so significant upwelling did not start until day 155 (June 4). There was a rather abrupt end to the 'season', with an ultimate reversal to primarily downwelling on day 259 (16 September). The cessation of upwelling in mid-September resulted in one of the

shortest annual upwelling periods since the 1997 El Nino. The total amount of upwelling for 2011 was 4,555 m<sup>3</sup>/s per 100 m of coastline, which is 26% lower than the 40-year average of 6,163 m<sup>3</sup>/s per 100 m. Figure 10. Cumulative upwelling index for 2011. Vertical arrows indicate the date of physical Spring transition (Day 105) and Fall transition (Day 246). 2011 had a shorter than average upwelling season and below average total upwelling.

[http://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/documents/peterson\\_etal\\_2011.pdf](http://www.nwfsc.noaa.gov/research/divisions/fe/estuarine/oeip/documents/peterson_etal_2011.pdf)

<< File: peterson\_etal\_2011.pdf >>  
Rochelle Labiosa, Ph.D.  
Office of Water and Watersheds  
US EPA, Region 10  
1200 Sixth Avenue, Suite 900, MC: OWW-191 Seattle, WA 98101-3140  
Ph: 206.553.1172  
Fax: (206) 553-0165

-----Original Appointment-----  
From: Cox, Michael  
Sent: Friday, March 11, 2016 9:12 AM  
To: Fullagar, Jill; Cope, Ben; Cora, Lori; Labiosa, Rochelle; Brown, Cheryl A.  
Subject: OA Paper. Call-n: [Personal Privacy / Ex. 6] Code: [Personal Privacy / Ex. 6], Adobe Connect:  
<https://epawebconferencing.acms.com/> [Personal Privacy / Ex. 6]  
When: Monday, March 14, 2016 9:00 AM-10:00 AM (UTC-08:00) Pacific Time (US & Canada).  
Where: R10Sea-Room-14Elwha/R10-Rooms-Service-Center

Thank you everyone for providing input, data, etc. Still some work to go but ran out of time today to continue.

Monday March 14th  
9:00 - 10:00  
Call-in: [Personal Privacy / Ex. 6]  
Code: [Personal Privacy / Ex. 6]  
Adobe Connect: <https://epawebconferencing.acms.com/> [Personal Privacy / Ex. 6]

Materials (I have attached three documents for our discussion on Monday.)

1. [Deliberative Process / Ex. 5] Draft paper (still needs work but I ran out of time for today).  
<< File: Upwelling Data From Marty Jacobsen.xlsx >>
2. Upwelling data (thanks Rochelle and Marty)  
<< File: OA Oregon [Deliberative Process / Ex. 5] March 12 2016 Draft.docx >>
3. Bednarsek data points (thanks Cheryl)  
<< File: Bednarsek Only Data points off of Oregon.pdf >>

#### Agenda

1. Discuss paper (I would suggest going through section by section).
  - Identify additional data needed.
  - Discuss recommendations.
2. Discuss possible meeting with Jan Newton and Dick Feely (they talked with Brian Rappoli at some conference)
3. Other